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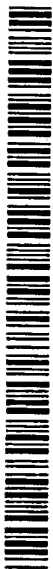
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(54) Title: MULTILAYER POLYMERIC/INORGANIC OXIDE STRUCTURE FOR ENHANCED GAS OR VAPOR BARRIER

(57) Abstract: The coated multilayer structure comprising a polymeric base layer, an inorganic oxide gas barrier layer on a surface on the polymeric base layer, and a top coat on the inorganic oxide gas barrier layer, the top coat comprising a soluble compound capable of reducing the permeability of the multilayer structure to gas or vapor. A method for enhancing the gas or vapor barrier properties of a multilayer polymeric/inorganic oxide structure is also disclosed. According to one embodiment, SiOx coated polyethylene terephthalate containers are coated with a gas or vapor barrier enhancing top coat.

INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08J/04 B32B27/36 B32B15/08 B65D65/40 B65D85/72
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08J B32B B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 246 795 A (BOWATER PACKAGING LTD) 12 February 1992 (1992-02-12)	1-7, 10, 11, 13-27, 30, 31, 33-40
Y	claims 1-4, 9-11 page 1, line 3 - line 14 page 5, line 32 - page 6, line 11 ---	8, 9, 28, 29
Y	EP 0 721 977 A (ABBEEY RES & DEV LTD) 17 July 1996 (1996-07-17) claim 1 --- -/--	8, 9, 28, 29

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 210 826 A (BOWATER PACKAGING LTD) 21 June 1989 (1989-06-21) claims 1-5 page 1, line 1 - line 16 page 7, line 16 - page 8, line 5	1-7, 10, 11, 13-27, 30, 31, 33-40
X	EP 0 460 966 A (FLEX PRODUCTS INC) 11 December 1991 (1991-12-11) claims 1, 3, 4, 9, 15 page 10, line 35 - line 40	1-7, 10, 11, 13-27, 30, 31, 33-38
X	US 3 442 686 A (JONES JOHN WILLARD) 6 May 1969 (1969-05-06) claims 1-6, 6 column 5, line 29 - line 40	1-6
A	GB 2 246 794 A (BOWATER PACKAGING LTD) 12 February 1992 (1992-02-12) claim 1	1
A	EP 0 709 485 A (ZEISS STIFTUNG ; SCHOTT GLASWERKE (DE)) 1 May 1996 (1996-05-01) claim 1	1
A	DE 41 13 221 A (LEYBOLD AG) 29 October 1992 (1992-10-29) claim 1	1
A	EP 0 113 555 A (BOC GROUP PLC) 18 July 1984 (1984-07-18) claim 1	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/26147

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2246795	A	12-02-1992	GB 2210826 A GB 2246794 A ,B	21-06-1989 12-02-1992
EP 0721977	A	17-07-1996	GB 2296714 A EP 0721977 A1 US 5614268 A	10-07-1996 17-07-1996 25-03-1997
GB 2210826	A	21-06-1989	GB 2246794 A ,B GB 2246795 A ,B	12-02-1992 12-02-1992
EP 0460966	A	11-12-1991	AT 184330 T CA 2044053 A1 DE 69131587 D1 DE 69131587 T2 EP 0460966 A2 JP 3056298 B2 JP 5170962 A US 5792550 A	15-09-1999 09-12-1991 14-10-1999 20-01-2000 11-12-1991 26-06-2000 09-07-1993 11-08-1998
US 3442686	A	06-05-1969	DE 1569290 A1 GB 1086482 A	06-05-1970 11-10-1967
GB 2246794	A	12-02-1992	GB 2210826 A GB 2246795 A ,B	21-06-1989 12-02-1992
EP 0709485	A	01-05-1996	DE 4438359 A1 AT 172754 T CA 2161362 A1 DE 59504059 D1 DK 709485 T3 EP 0709485 A1 ES 2123872 T3 JP 8318590 A US 5736207 A US 5900285 A	02-05-1996 15-11-1998 28-04-1996 03-12-1998 12-07-1999 01-05-1996 16-01-1999 03-12-1996 07-04-1998 04-05-1999
DE 4113221	A	29-10-1992	DE 4113221 A1	29-10-1992
EP 0113555	A	18-07-1984	AU 569269 B2 AU 2225583 A DE 3372979 D1 DK 568583 A EP 0113555 A1 ES 527911 D0 ES 8501807 A1 GB 2132229 A ,B GR 79744 A1 JP 59155041 A ZA 8309167 A	28-01-1988 14-06-1984 17-09-1987 11-06-1984 18-07-1984 01-12-1984 01-03-1985 04-07-1984 31-10-1984 04-09-1984 25-07-1984